

What is claimed is:

1. A method of classifying a population by drug responsiveness, comprising:

(a) determining a multidimensional coordinate  
5 point representative of the expression levels of a sample of molecules in a specimen from individuals in a population of individuals administered a drug; and

(b) determining a drug response-associated  
10 reference expression region of a group of individuals in said population using said multidimensional coordinate points, thereby classifying said group of individuals into a drug response reference population.

2. The method of claim 1, further comprising the  
15 step of correlating said group of individuals with a response to said drug.

3. The method of claim 2, wherein said response is an adverse drug reaction.

4. The method of claim 2, wherein said response is alleviation of a sign or symptom associated with a  
20 condition of an individual administered said drug.

5. The method of claim 1, further comprising the step of inputting the expression level of said molecules in said sample.

6. The method of claim 1, further comprising the step of determining the expression level of said molecules in said sample.

7. The method of claim 6, wherein the expression  
5 levels of said sample of molecules in said specimen are determined by direct comparison with reference expression levels correlated with health-associated reference expression intervals of said molecules in said sample.

8. The method of claim 6, further comprising the  
10 step of contacting said specimen with a target.

9. The method of claim 1, wherein said specimen is selected from the group consisting of leukocytes, blood, and serum.

10. The method of claim 8, wherein said target is  
15 an array.

11. The method of claim 1, wherein said molecules in said specimen comprise nucleic acids.

12. The method of claim 8, wherein said target comprises nucleic acid ligands.

20 13. The method of claim 1, wherein said molecules in said specimen comprise polypeptides.

14. The method of claim 8, wherein said target comprises antibody ligands.

15. The method of claim 1, wherein said molecules in said specimen comprise small molecules.

16. A method of classifying a population by drug responsiveness, comprising:

5 (a) determining a multidimensional coordinate point representative of the expression levels of a sample of molecules in a specimen comprising leukocytes from individuals in a population of individuals administered a drug; and

10 (b) determining a drug response-associated reference expression region of a group of individuals in said population using said multidimensional coordinate points, thereby classifying said group of individuals into a drug response reference population.

15 17. A method of predicting a drug response in an individual, comprising:

(a) determining a multidimensional coordinate point representative of the expression levels of a sample of molecules in a specimen from an individual treated with a  
20 drug;

(b) comparing said multidimensional coordinate point to a drug response-associated reference expression region for individuals treated with said drug; and

(c) determining if said multidimensional  
25 coordinate point for said individual is within or outside

said drug response-associated reference expression region,  
wherein said multidimensional coordinate point within said  
drug response-associated reference expression region  
indicates said individual has a substantially similar  
5 response to said drug as individuals in a drug response  
reference population used for said drug response-associated  
reference expression region.

18. The method of claim 17, further comprising  
the step of inputting the expression level of said molecules  
10 in said sample.

19. The method of claim 17, further comprising  
the step of determining the expression level of said  
molecules in said sample.

20. The method of claim 19, wherein the  
15 expression levels of said sample of molecules in said  
specimen are determined by direct comparison with reference  
expression levels correlated with health-associated  
reference expression intervals of said molecules in said  
sample.

21. The method of claim 17, further comprising  
the step of contacting said specimen with a target.

22. The method of claim 17, wherein said specimen  
is selected from the group consisting of leukocytes, blood,  
and serum.

23. The method of claim 21, wherein said target  
25 is an array.

24. The method of claim 17, wherein said molecules in said specimen comprise nucleic acids.

25. The method of claim 21, wherein said target comprises nucleic acid ligands.

5           26. The method of claim 17, wherein said molecules in said specimen comprise polypeptides.

27. The method of claim 21, wherein said target comprises antibody ligands.

10           28. The method of claim 17, wherein said molecules in said specimen comprise small molecules.

29. A method of predicting a drug response in an individual, comprising:

15           (a) determining a multidimensional coordinate point representative of the expression levels of a sample of molecules in a specimen comprising leukocytes from an individual treated with a drug;

            (b) comparing said multidimensional coordinate point to a drug response-associated reference expression region for individuals treated with said drug; and

20           (c) determining if said multidimensional coordinate point for said individual is within or outside said drug response-associated reference expression region, wherein said multidimensional coordinate point within said drug response-associated reference expression region

indicates said individual has a substantially similar response to said drug as individuals in a drug response reference population used for said drug response-associated reference expression region.

5                   30. A method of categorizing drug responsiveness in a population, comprising:

                  (a) determining a multidimensional coordinate point representative of the expression levels of a sample of molecules in specimens from a population of individuals  
10   treated with a drug;

                  (b) identifying a first group of individuals having a substantially similar response to said drug; and

                  (c) determining a drug response-associated reference expression region of said first group of  
15   individuals using said multidimensional coordinate points of said first group of individuals, thereby categorizing the drug responsiveness of said first group of individuals.

                  31. The method of claim 30, further comprising the steps of:

20                   (d) identifying a second group of individuals having a substantially similar response to said drug, said drug response in said second group being different than the drug response of said first group; and

                  (e) determining a drug response-associated  
25   reference expression region of said second group of

individuals using said multidimensional coordinate points of said second group of individuals, thereby categorizing the drug responsiveness of said second group of individuals.

32. The method of claim 31, further comprising  
5 optionally repeating steps (d) and (e) one or more times for an additional group of individuals having a substantially similar response to said drug, said drug response in said additional group of individuals being different than the drug response of identified groups.

10 33. The method of claim 30, further comprising the step of inputting the expression level of said molecules in said sample.

34. The method of claim 30, further comprising  
15 the step of determining the expression level of said molecules in said sample.

35. The method of claim 34, wherein the  
expression levels of said sample of molecules in said specimen are determined by direct comparison with reference expression levels correlated with health-associated  
20 reference expression intervals of said molecules in said sample.

36. The method of claim 30, further comprising  
the step of contacting said specimen with a target.

37. The method of claim 30, wherein said specimen  
25 is selected from the group consisting of leukocytes, blood, and serum.

38. The method of claim 36, wherein said target is an array.

39. The method of claim 30, wherein said molecules in said specimen comprise nucleic acids.

5 40. The method of claim 36, wherein said target comprises nucleic acid ligands.

41. The method of claim 30, wherein said molecules in said specimen comprise polypeptides.

10 42. The method of claim 36, wherein said target comprises antibody ligands.

43. The method of claim 30, wherein said molecules in said specimen comprise small molecules.